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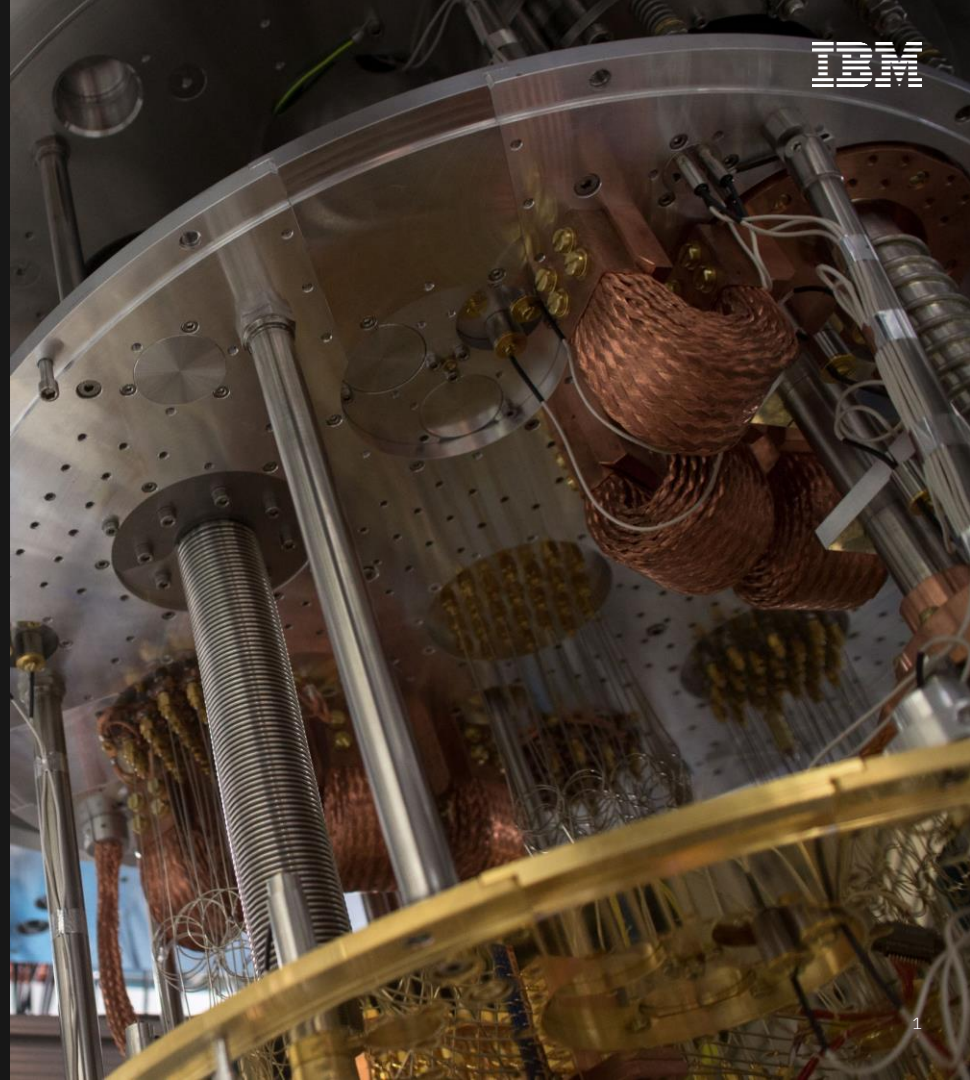# Quantum Computing capabilities today and in the future

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IBM Q Ambassador

Unfortunately the presentation slides cannot be distributed, but the following slides give you some pointers to resources which cover what was discussed in this presentation.
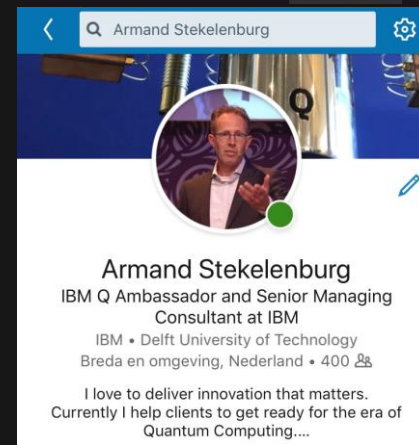
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- Armand Stekelenburg
- IBM Benelux
- IBM Q Ambassador
- PhD in Applied Physics Delft University of Technology
- Quantum Computing since May 2016

Connect on LinkedIn

IBM Q publications and websites

IBM Q and the IBM Q Experience
http://ibm.com/quantum-computing

Qiskit
https://qiskit.org

Quantum Volume advancement
https://www.ibm.com/blogs/research/2020/01/quantum-volume-32/

Open Pulse Development
https://arxiv.org/pdf/1809.03452.pdf

Error Mitigation
https://www.nature.com/articles/s41586-019-1040-7

IBM Q publications (Chemistry/ML/AI/Finance)

Quantum Chemistry
https://www.nature.com/articles/nature23879
https://arxiv.org/abs/1906.10675. (IBM, Keio, and Mitsubishi Chemical)

Quantum Machine Learning
https://www.nature.com/articles/s41586-019-0980-2

Quantum AI
https://arxiv.org/abs/1906.10467   (Keio, Mitsubishi Chemical, MIzuho, MUFG)

Quantum Finance: Risk analysis
https://www.nature.com/articles/s41534-019-0130-6

Quantum Finance: Generative adversarial networks
https://arxiv.org/abs/1904.00043

Quantum Finance: Amplitude estimation w/o QPE (IBM, Keio Univ, MUFG and Mizuho joint paper)
https://arxiv.org/abs/1904.10246

Quantum Finance: Credit risk analysis
https://arxiv.org/abs/1907.03044

Quantum Finance: Option pricing (IBM and JP Morgan Chase joint paper)
https://arxiv.org/abs/1905.02666

Quantum Finance: Portfolio optimization
https://arxiv.org/abs/1907.04769

IBM Q Expert Insights

"Exploring quantum computing use cases for manufacturing" — June 2019
https://www.ibm.com/thought-leadership/institute-business-value/report/quantum-manufacturing

"Getting your financial institution ready for the quantum computing revolution" — April 2019
https://www.ibm.com/downloads/cas/MBZYGRKY

"Building your quantum capability: The case for joining an ecosystem"" — Feb 2019
https://ibm.co/quantumeco

"Coming soon to your business: quantum computing - Five strategies to prepare for the paradigm-shifting technology"
ibm.biz/quantumstrategy

"Wielding a double-edged sword: Preparing cybersecurity now for a quantum world" — July 2018
 ibm.biz/quantumsecurity

"Taking the Quantum Leap: Why now?" — February 2018
https://www-935.ibm.com/services/us/gbs/thoughtleadership/quantumleap/

Thank you

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